



Volunteer Lake Assessment Program Individual Lake Reports

PROVINCE LAKE, EFFINGHAM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	4,672	Max. Depth (m):	4.9	Flushing Rate (yr ⁻¹)	1	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	1014	Mean Depth (m):	2.8	P Retention Coef:	0.77	1987	OLIGOTROPHIC	
Shore Length (m):	8,500	Volume (m ³):	11,268,500	Elevation (ft):	480	2006	MESOTROPHIC	

TROPHIC CLASSIFICATION

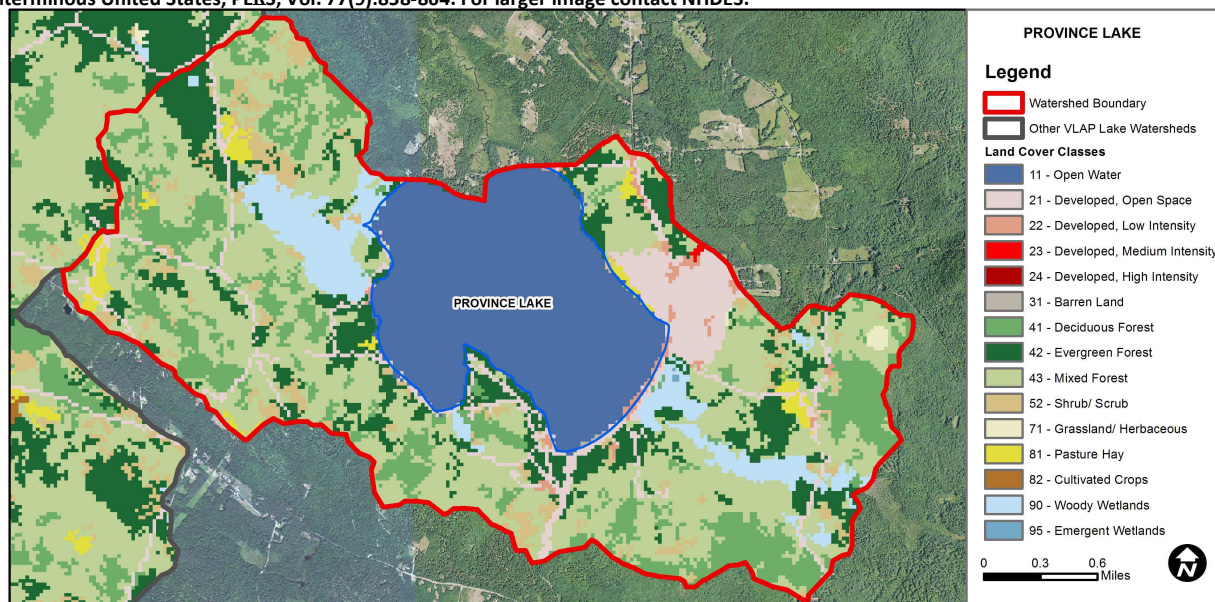
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	20.5	Barren Land	0.04	Grassland/Herbaceous	0.2
Developed-Open Space	7.27	Deciduous Forest	13.94	Pasture Hay	1.53
Developed-Low Intensity	0.88	Evergreen Forest	11.4	Cultivated Crops	0
Developed-Medium Intensity	0.05	Mixed Forest	33.78	Woody Wetlands	5.98
Developed-High Intensity	0	Shrub-Scrub	4.38	Emergent Wetlands	0.02



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

PROVINCE LAKE, EFFINGHAM, NH

2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were the lowest measured since monitoring began. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were relatively low and approximately equal to the NH lake medians.
- 🔥 **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were slightly greater than the NH lake median, but remained stable throughout the summer. Historical trend analysis indicates a relatively stable epilimnetic (upper water layer) phosphorus level since monitoring began. Phosphorus levels were elevated in Lower Campground Inlet in September and turbidity was also elevated indicating potential sediment contamination.
- 🔥 **TRANSPARENCY:** Transparency improved this year likely due to the decrease in algal growth. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- 🔥 **TURBIDITY:** Turbidity in Island Inlet was slightly elevated throughout the summer likely due to low flow conditions. Lower Campground Inlet experienced elevated turbidity in September likely due to sediment contamination. Deep spot turbidity was also slightly elevated throughout the summer potentially due to suspended sediments from boating activities.
- 🔥 **pH:** pH levels were adequate, however have been lower than desirable in the past.
- 🔥 **RECOMMENDED ACTIONS:** The decreased phosphorus and chlorophyll, and increased transparency likely were a result of the dry weather conditions in 2012. Less stormwater runoff impacted the lake which led to improved water quality. This indicates that stormwater management practices should be implemented in the watershed. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management". Keep up the great work!

Station Name	Table 1. 2012 Average Water Quality Data for PROVINCE LAKE								
	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	4.73	2.22	6	46.7	14	2.94	3.05	1.84	6.9
Deep Hypolimnion				46.9	14			2.11	6.77
Island Inlet				49.4	20			2.72	6.37
Lower Campground			3	39.2	20			1.77	6.55
Outlet				46.7	14			1.68	6.9
Rte 153 Inlet			4	42.4	23			0.75	6.08

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
 Sara Steiner
 PO Box 95
 Concord, NH 03302-0095
 (603) 271-2658
 sara.steiner@des.nh.gov

